What is claimed is:

1.   A method for vibration damping in a machine tool comprising at least one hydrostatic guide (8) including at least one pocket (1) for supporting a first component (9) on a second component (10), through which an oil flow is passed with a predetermined volume flow and at a predetermined pressure and exits through at least one gap (3), characterized in that in response to the loads arising and for achieving a constant width of gap (3), the oil flow through said gap (3) is regulated.

2.   The method according to claim 1, characterized in that the oil flow in said pocket (1) is regulated.

3.   The method according to claim 1, characterized in that the oil volume in said pocket (1) is regulated.

4.   The method according to claim 1, characterized in that as the measured variable the oil pressure in said pocket (1) is taken as a basis.

5.   The method according to claim 1, characterized in that as the measured variable the width of said gap (3) is taken as a basis.

6.   The method according to claim 1, characterized in that as input quantities accelerations of components (9, 10) are taken into account.

7.   The method according to claim 6, characterized in that the loads of the hydrostatic guide are pre-calculated on the basis of the accelerations resulting from the movements of components and/or workpieces, and that in response

4   to said values the oil pressure and/or oil flow through the gap (3) that is

5   required for preventing changes in the width of the gap is pre-calculated.

1   8.   The method according to claim 1, characterized in that the vibration behavior

2   of the machine tool itself is taken into account by predetermining and

3   correspondingly regulating the oil pressure in said pocket (1) or the oil flow

4   through said gap (3) for preventing changes in the width of said gap.

1   9.   The method according to claim 1, characterized in that the oil pressure and

2   the width of said gap (3) of a plurality of pockets (1) of a plurality of

3   hydrostatic guides are regulated by means of a single control unit to support

4   components and/or workpieces in a highly stiff manner.

1 10.   The method according to claim 9, characterized in that the oil pressure and

2   the width of said gap (3) are regulated at the same time with a control unit for

3   executing machining programs of said machine tool.

1 11.   The method according to claim 9, characterized in that the control of the oil

2   pressure and of the width of said gap (3) compensates deformations arising in

3   components of the machine tool.

1 12.   An apparatus for performing the method according to claim 1, comprising a

2   supply line (6) connected to the pocket (1), characterized by a control valve

3   (4) arranged in said supply line (6).

1 13.   The apparatus according to claim 12, characterized by a pressure reservoir

2   (5) arranged upstream of said control valve (4).

1   14.   The apparatus for performing the method according to claim 1, comprising a
2   supply line (6) connected to said pocket (1), characterized by a means
3   arranged in the area of said pocket (1) for changing the volume of said pocket
4   (1).

1   15.   The apparatus according to claim 14, characterized in that said means
2   comprises a piston-cylinder unit.

1   16.   The apparatus according to claim 14, characterized in that said means
2   comprises at least one piezoelectric element (19).

1   17.   A method according to claim 1, characterized in that the oil pressure and/or
2   the oil flow and/or the oil volume of a plurality of pockets (1) of a plurality of
3   hydrostatic guides (8) of a machine tool are regulated by means of a joint
4   control unit.

1   18.   The method according to claim 17, characterized in that said control unit
2   controls the individual pockets (1) independently of one another.

1   19.   The method according to claim 17, characterized in that the control unit for the
2   active vibration damping of components of the machine tool processes
3   vibrations arising in the components and/or workpieces as input quantities.

1   20.   The method according to claim 19, characterized in that the vibrations of the
2   components are vibrations excited outside the components.

1   21.   The method according to claim 19, characterized in that the vibrations of the
2   components are the natural vibrations thereof.

1 22. The method according to claim 19, characterized in that the vibrations arising
2   are measured.

1 23. The method according to claim 19, characterized in that the vibrations arising
2   are calculated.

1 24. The method according to claim 17, characterized in that the control unit
2   processes and compensates dimensional deviations of said guides (8) as
3   input quantities.

1 25. The method according to claim 24, characterized in that the dimensional-
2   deviations are measured and the measured values are supplied to the control
3   unit.

1 26. The method according to claim 25, characterized in that the dimensional
2   deviations are measured in advance, stored in a memory and the measured
3   values are supplied to the control unit during operation of the machine tool.

1 27. The method according to claim 24, characterized in that the dimensional
2   deviations are calculated.